

## **REMARKS**

### **I. Election/Restrictions**

The Examiner has stated again that the requirement is still deemed proper and that this application contains claims 18-23 drawn to an invention nonelected with traverse in Application No. 10/684520. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP 821.01.

However, the Applicant again, as mentioned in the previous action, reserves the right to file a petition to the final requirement for restriction. In addition, as mentioned in the previous action, cancellation of the non-elected claims are not appropriate at this time because of according to MPEP §821.04 in the In re Ochiai rejoinder, even when there is even a proper restriction between product and process claims and when the product claims are elected, and the product claims are allowable, the process claims that include all the limitations of the allowable product claims would also be allowable. MPEP §821.04

### **II. Claim Rejections - 35 USC § 102**

No claim is anticipated under 35 U.S.C. §102 (b) unless all of the elements are found in exactly the same situation and united in the same way in a single prior art reference. As mentioned in the MPEP §2131, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Every

element must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. *Id.*, “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970), and MPEP 2143.03.

**A. Claims 1, 5-6, 8-10, 15, 24-29, 31-33, 38-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Uemura et al. (US 6239547 B1). The Applicant respectfully traverses.**

Regarding Claims 1, 24, the Examiner in paper no. 20060817, states that Applicant argues that Uemura does not indicate a predetermined thickness for the base layer. Examiner respectfully disagrees; that Uemura discloses some base layer (422) utilized to "fix" the graphite columns (421) to some substrate, suffices that the distinction of a base layer, different from that of the graphite columns, establishes that Uemura's base layer thickness must fall within some predetermined thickness.

However, to state that some base layer to fix the graphite column can still be varied thickness. No is no mention of a specific thickness and especially one that is predetermined.

Furthermore, Uemura states, “The electrode 406b and the graphite columns 421 fixed with the conductive adhesive 422 constitute an electron-emitting source.” The conductive adhesive could have any sort of thickness and it is not clear that it is specifically or has to be a certain or predetermined (determined beforehand) thickness. There is no indication that the thickness must be

determined beforehand, but rather there exists a base layer which could be any thickness and not necessarily predetermined. Simply stating that it is needed to fix is not stating a predetermined thickness.

Respectfully, the Examiner's logic that different reference numerals means substantially unmixed is conjecture rather than an actual disclosure as there is no such reasoning that referenced numerals cannot be mixed. This is a reasoning that is difficult to maintain on appeal.

The Examiner in paper no. 20060817 states that Applicant argues that Uemura fails to disclose the carbon nanotube (hereinafter referred to as CNT) layer being provided on the base layer in a state substantially un-mixed with the base layer. Examiner disagreed by stating that the degree at which the CNT is unmixed is determined by the fact that a distinction between the two different layers is made (1) a graphite column layer (distinguished as 421) and (2) a base layer (distinguished as 422) used as a binder. Hence, the CNTs are inherently substantially unmixed.

However, having two layers of 421 and 422 does not identically disclose that it is unmixed. The disclosure must be identically as arranged in the claim.

Furthermore, As mentioned above by the MPEP §2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Each of the elements are not expressly described. Inherent description is also not pertinent in this discussion, because inherency is involved only where a minor, well-known feature is lacking. Further the CCPA has added that "inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA

1981).

Therefore, the two reference numbers does not for certain mean that they are substantially unmixed.

As mentioned in the claim and specification of the present invention, the carbon nanotube layer being provided on the base layer in a state substantially un-mixed with the base layer is not just a minor point. Therefore, the use of inherency by the Examiner is improper here.

In layer 905, there can be CNT embedded in the layer. As seen in figure 15 and 16 in the present application, the conventional methods include many embedded CNT, and many CNT exposed. As mentioned in paragraph [0008] of the present application in the background section, “Although the carbon nanotubes 3a protrude from the surface of the conventional electron emission source 1, the carbon nanotubes 3b (i.e., most of the carbon nanotubes) are embedded in the solid granules.” Further, as seen in figure 16, portions of the exposed CNT can be bent or curled in the base layer such that the CNT is not substantially unmixed.

The related disclosure to figure 9B, only states that the “tips” of the CNT of some but not all the CNT are exposed. It is clear that “tip” is only referring the end of the CNT and not a substantial portion.

Therefore, the description, clearly only mentions “tips” which clearly is not a substantial portion and there is no disclosure in the drawings and related specification concerning how the CNT is within the base layer as seen in figure 9B, Uemura is devoid of any details of the CNT or other description.

Therefore, as mentioned above, “may” result form a given set of circumstance is not enough

of a disclosure in Uemura to constitute anticipation.

3. Regarding Fig. 7, Col. 12, lines 39-48, in paper no. 20060817, the Examiner again invites applicant to indicate where Uemura teaches that the CNTs are “substantially embedded” in the base layer. That the electron-emitting terminals of Uemura’s CNTs are hidden in Fig. 7A, the terminals of the CNTs are clearly exposed, in Figs. 7C & 7E, as a result of irradiation of the top portion of the subsequent silver particles of the base layer.

Respectfully the Examiner bears the burden of proving substantially un-mixed, which as shown above, Uemura does not disclose and is appealable.

Moreover, whether CNT are exposed or shown, do not indicate either way that they are substantially mixed or not.

Respectfully, The PTO has the **burden of proof, by a preponderance of the evidence**, to show that an applicant is not entitled to a patent because the claimed subject matter is anticipated by, or is obvious from, the art of record. A patent applicant is entitled to a patent “unless” the PTO establishes otherwise. See, e.g., *In re Dembiczak*, 175 F.3d 994, 1001, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999); *In re Epstein*, 32 F.3d 1559, 1564 (Fed. Cir. 1994); *In re Rijckeart*, 9 F.3d 1551, 1552, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

In addition, Uemura discloses, as mentioned above, only that the “tips” are exposed and so

there is no indication that the CNT is substantially unmixed as Uemura only states that “On the electron-emitting surface, the tips of the graphite columns 901 are exposed.” The tips being exposed do not indicate that the CNT is unmixed. Moreover, the graphite column is not just CNT, but “As described above, the graphite column 901 is made of an aggregate of carbon nanotubes and carbon nanopolyhedrons” as seen in figure 9.

4. Regarding Claims 8, 31, these claims have been canceled and the features thereof have been incorporated into claims 1 and 24.

The Examiner in paper no. 20060817 states that Applicant argues that Uemura fails to teach the prominences and depressions of the base layer. Examiner respectfully disagrees. The prominences and depressions, as refuted by Applicant in Fig. 7, are clearly shown in Figs. 7C & 7E, wherein the prominences and depressions are a subsequent result of the exposed CNT terminals.

However, as mentioned in col.12, the printed pattern is being irradiated to remove 703 and 702, and therefore, is an intermediate product and not the final, as such removal makes an effect.

Col. 11 mentions 7E as the scanning electron microscope micrograph, but it is actually 7F, rather than 7E. 7E still has the binders 702 that have not been removed and therefore, still not the final product.

5. Regarding Claims 9, 15, 32, 38, in paper no. 20060817, the Examiner states the following that Applicant argues that Uemura does not teach the spherical particles below the CNT layer. Examiner respectfully disagrees. Tying to the same concept of a notable distinction between the two

different layers is made (1) a graphite column layer (distinguished as 421) and (2) a base layer (distinguished as 422) used as a binder, hence having a substantial degree of unmixing, the spherical particles, such as Ag, are inherently formed below the provided CNT layer. For further clarification, examiner additionally refers to Col. 11, lines 13-17, wherein Uemura discloses the graphite column power layer being "deposited on not only the conductive adhesive (applicant's "base layer") ..." The Examiner states that a deposition of CNT is practice upon the preset conductive adhesive, teaches that while there may be some mixing of CNT and base layer, a separation is present nonetheless.

However, again the Examiner's of inherency is improper as shown above. As mentioned above, inherency should not be used to such an extent to limitations that are not minor. Furthermore, this does not show that the base layer is below the CNT layer as col. 11, lines 13-17 is only indicating that the graphite column powder is deposited on the remaining region to be later removed in the other region except the conductive adhesive layer.

Further, simply stating that a layer is not deposited only on conductive layer does not necessarily mean that it as claimed in the present invention. The operative word is "necessarily" and here according to anticipation, such is not necessarily shown in the art.

6. With respect to Claim 40, Uemura teaches that the base layer (703, Figure 7) for each electron emission source including a thin film with a regular pattern of prominences and depressions at certain width, depth and intervals accommodating the carbon nanotube layer (Fig. 7).

However, figure 7 does not disclose in any way depressions at certain width, depth and intervals and that the pattern is regular. Further, nothing in the disclosure in Uemura makes such a

statement. Further, as mentioned in Specifically in the MPEP §2125 under the heading “DRAWINGS AS PRIOR ART” and under the subheading “PROPORTIONS OF FEATURES IN A DRAWING ARE NOT EVIDENCE OF ACTUAL PROPORTIONS WHEN DRAWINGS ARE NOT TO SCALE”, the MPEP states “When the reference does not disclose that the drawings are to scale and is silent as to dimensions, **arguments based on measurement of the drawing features are of little value**. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977). Since there is no description in Uemura that states a regular pattern of prominences and depressions at certain width, depth and intervals accommodating the carbon nanotube layer, then there is no actual disclosure as such.

7. With respect to claim 39, the Examiner merely referred to claim 1 rejection. However, respectfully, the claim states that the carbon nanotubes are directly provided on the base layer and unmixed with the base layer substantially. However, as seen in figure 7, the carbon nanotubes are not “directly” disposed on the base layer. Furthermore, figure 9 also does not disclose the direct disposition of the carbon nanotubes on the base layer.

8. With respect to Claim 41, the Examiner states that Uemura teaches that the carbon nanotubes of carbon nanotube layer penetrating into the base layer but substantially unmixed with the base layer (Fig. 7).

Figure 7 does not show substantially unmixed as seen the figure, in fact it is quite mixed.



Furthermore, the carbon nanotubes are not penetrated into the base layer as 701, the metal base has no contact with the nanotubes, let alone penetration.

**B. Claims 1-2, 4, 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakada et al. (US 6455989 B1). The Applicant respectfully traverses.**

1. Regarding Claims 1, 24, in paper no. 20060817, the Examiner states that Applicant argues that Nakada's projecting structure 161 is not structurally comparable to the base layer of the present invention. Examiner disagreed and stated the following: the CNT layer is to provide on Nakada's projecting structure is basis alone for substantiating its entitlement as the claimed "base layer." Inherently, any such layer that a CNT layer is formed on may be portrayed as a base layer thereof. Applicant further argues that Nakada fails to disclose the CNT layer being provided on the base layer in a state substantially unmixed with the base layer. Examiner respectfully disagrees. That a distinction is made between Nakada's projecting structure 161 and Nakada's CNT layer 16a is basis enough for the two layers, one being formed on the other to be substantially unmixed.

However, again, the use of inherency is not being used in a minor circumstance, but very heavily by the Examiner.

As shown below, one cannot assume necessarily that 161 is the base layer.

Further, it not necessarily that there is carbon nanotubes that are mixed and not shown.

Additioanlly, claims 8, and 31 were not rejected. These claims have been canceled and the

features thereof have been incorporated into claims 1 and 24 rendering the rejection moot.

2. Further, as mentioned above, the use of drawings alone is improper. Specifically in the MPEP §2125 under the heading “DRAWINGS AS PRIOR ART” and under the subheading “PROPORTIONS OF FEATURES IN A DRAWING ARE NOT EVIDENCE OF ACTUAL PROPORTIONS WHEN DRAWINGS ARE NOT TO SCALE”, the MPEP states “When the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. In re Wright, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977). Therefore, the figure 6 in itself cannot be properly relied upon as indication of no substantial mixing as the Examiner indicates. There is no indication concerning the mixing of carbon nanotubes and its relationship with the base layer. There must be a disclosure as exactly arranged in the claims. Moreover, there is no disclosure that the thickness of the base layer is actually determined before hand.

3. Further, according to MPEP §2112, “examiner must provide rationale or evidence tending to show inherency” such that “The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because

inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’ ” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

Therefore, one cannot assume that 161 is the base layer and the reasoning in paper no. 20060817 of “any such layer that a CNT layer is formed on may be portrayed as a base layer thereof” is not a proper reason, but rather a conclusion.

Secondly, looking at the claim language of claim 1, the base layer has a substantially vertical flank, whereas the layer in Nakada, quite clearly, has a trapezoidal shape.

The Examiner disagrees with the applicant’s argument that Nakada fails to disclose the CNT layer being provided on the base layer in a state substantially unmixed with the base layer. The Examiner states that a distinction is made between Nakada’s projecting structure 161 and Nakada’s CNT layer 16a is basis enough for the two layers, one being formed on the other to be substantially unmixed. However, as shown above, the present invention has a vertical flank, while Nakada’s 161 layer does not and therefore, it is clear that the CNT is not substantially unmixed.

In addition, there is nothing in Nakada that actually discloses identically as arranged in the claim, the CNT being substantially unmixed with the base layer.

## **II. Claim Rejections - 35 USC § 103**

According to MPEP 706.02(j), the following establishes a *prima facie* case of obviousness under 35 U.S.C. §103:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

**A. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Choi et al. (US 2001/0006232 A1). The Applicant respectfully traverses.**

Regarding Claim 3, the Examiner states in paper no. 20060817 that Applicant argues that the motivation given by the Examiner of "easier manufacturing," is a broad generalized statement that is not clear and particular and not from the references themselves. Examiner respectfully disagrees.

The Examiner adds that Paragraph 0043 of Choi clearly state that the gate electrodes installed

below the cathodes, on a substrate, so that the "manufacture of the devices is easy."

However, gate electrodes being installed below the cathodes is not particular to the claimed invention as the claim states, "gate electrodes formed in a stripe pattern on one of the first and second substrates provided with the electron emission sources."

**B. Claims 7, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura et al. (US 6239547 B1) in view of Ito (US 6885142 B2). The Applicant respectfully traverses.**

With respect to Claim 7, the Examiner states that Uemura lacks a frit glass from the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub>, but that in the same field of endeavor, Ito teaches a glass frit that selected from the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub> (Col. 2, lines 2-7) for the purpose preventing softening of the sealing portion including the frit glass during device manufacturing (Col. 2, lines 2-7), as Ito teaches the suitability of using a glass frit formed of the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub>. Therefore, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the composition of the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub>, as disclosed by Ito, in the device of Uemura in order ensure the prevention of softening of the sealing portion including the frit glass during device manufacturing and to choose from one of the materials disclosed by Ito, since Ito teaches the suitability of using a glass frit formed a the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub> and it has been held to be within the general skill of an artisan to select a known material on the basis of the intended use. See MPEP 2144.07.

However, first, Ito is not in the same field of endeavor as Ito deals with a "Funnel for Color

Cathode Ray Tube” and not a field emission display as claimed by the present invention. Ito is not an analogous art. Respectfully, according to MPEP §2141.01(a) and cases such as *In re Oetiker* cited above, the reference of Ito is not within the field of applicant’s endeavor, and is not reasonably pertinent to the particular problem with which the inventor was concerned because it has to be shown that person of ordinary skill, seeking to solve a problems of the field emission displays of the present invention would not be reasonably be expected or motivated to look to funnels for cathode ray tubes that are trying to solve the problem of cathode ray tubes rather field emission devices. Therefore, since Ito is not an analogous prior art, the combination does not render the present invention as obvious.

Secondly, to say that Ito teaches the suitability of using a glass frit formed a the group consisting of PbO, SiO<sub>2</sub>, Ba<sub>2</sub>O<sub>3</sub> and it has been held to be within the general skill of an artisan to select a known material on the basis of the intended use according to MPEP 2144.07 is not a proper application of MPEP §2144.07, especially since Ito concerns a cathode ray tube and not a field emission display.

**C. Claims 14, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Lee et al. (US 2002/0175617 A1). The Applicant respectfully traverses.**

In paper no. 20060817, the Examiner states that Regarding Claims 14, 37, that Lee’s thickness is taught at a particular threshold, the threshold particular apt to tolerate the support of

respective CNTs. If the tolerance was nonexistent, then the threshold for Lee's thickness would be rendered inadequate. The Examiner states that Lee teaches a functional embodiment, disclosing the claimed thickness, deems the motivation proper in the provided rejection. However, as shown below, the teaching is being taught away by Lee and therefore, the motivation is not proper.

Figure 2 of Lee is the prior art and not the teaching of Lee. Lee is teaching away from the prior art of figure 2. Lee in the background section indicates how the prior art is problematic and that invention of Lee solves the failings of the prior art.

According to MPEP §2145, "It is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). This portion of Lee cannot be just ignored because according to MPEP §2141.02, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)."

**D. Claims 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura et al. (US 6239547 B1) in view of Cole et al. (US 6919730 B2). The Applicant respectfully traverses.**

The Examiner in paper no. 20060817, response to the argument section, states that Applicant

further argues that the Ni islands are not included in the base layer. The relevance, the Examiner states of the Ni island not being included in the base layer is unclear. Cole's platform, combination of final product, 220 & 235, are the relevant features in the structural platform the Examiner states.

The islands are mentioned because the disclosure of Cole is referring not to the prominences and depressions of the thin film as claimed. Further, 220 is the first layer on the substrate 210 and the 235 is the temperature sensor which are not pertinent to claimed invention.

As seen col. 3, lines 17-27, Cole is not referring to prominences and depressions of the base layer itself, but between different units of the base layers. As seen in figure 2B and 2D, the base layer itself does not have prominences and depressions, but are referring to the different sets of layers. The presently claimed invention clearly states, the base layer includes a film having prominences and depressions, which then clearly refers to the base layer itself and not between separate base layer units.

In addition, both Nakada and Cole teach away from prominences and depressions of the base layer itself, as they include flat portions on the base layers. Cole includes separate electron emission sources as the Examiner is referring to and not within the same electron emission source.

**E. Claims 11, 16, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Cole et al. (US 6919730 B2). The Applicant respectfully traverses.**

Regarding Claims 11 and 16, in paper no. 20060817, the Examiner states that Applicant



argues that Cole does not mention the depth. Examiner respectfully disagrees and states that Cole discloses that the "platforms are 1-5 micron rectangles ... " This, the Examiner states implies that the platforms have two pairs of opposite sides of that are of equal length, but that all four sides fall within 1-5 microns. Hence, the Examiner states that the depth is adequately provided.

However, as shown above, Cole is not referring between base layer units, but the base layer itself as the claims clearly states the base layer includes a thin film having prominences and depressions and so the dimensions given are not applicable.

In addition, both Nakada and Cole teach away from prominences and depressions of the base layer itself, as they include flat portions on the base layers themselves. Cole includes separate electron emission sources as the Examiner is referring to and not within the same electron emission source.

**F. Claims 12, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Cole et al. (US 6919730 B2) with further consideration to Mau et al. (US 6866801 B1). The Applicant respectfully traverses.**

With respect to Claim 12 and 35, the Examiner states that Nakada-Cole fails to teach the claimed composition of the prominence and depressions of the base layer, but that in the same field of endeavor, Mau teaches that the prominence and depressions are formed of indium thin oxide (Col. 2, lines 65-67 - Col. 3, lines 1-8) in order to provide sufficient thermal stability according to the

[CNT growth] synthesis temperature applied (Col. 2, lines 56-67).

However, it is clear that in fact Nakada and Cole teaches away from the thin film having prominences and depressions as both Nakada and Cole fail to have a film included in the base layer itself having prominences and depressions, but rather a flat surface.

In addition, it is not taught or suggested in Mau, that the prominences are from a thin film included in the base layer as seen in figure 2a and b, the CNT is formed on a layer and then a separate polymer layer is formed. Therefore, the thin film does not include the prominences and depressions, but is a separate layer. The separate layer is separating the different electron emission sources and is not related to the particular source.

**G. Claims 13, 17, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Lee et al. (2002/0175618 A1). The Applicant respectfully traverses.**

With respect to Claim 13, the Examiner states that Lee teaches a carbon nanotube density of the carbon nanotube layer being greater than the carbon nanotube density of the base layer (Page 3, Par [0018]).

However, paragraph 18 of Lee only teaches that a higher density of CNT has an undesirable effect and therefore, clearly teaches away from the claimed invention.

The Examiner states in paper no. 20060817 in the response to the arguments, that regarding

Claims 13, 17, 36, Applicant argues that the combination rejection is improper. Examiner respectfully disagrees. That the applicant claims the CNT density to be 100 to 1,000,000 times a carbon nanotube density of the base layer fails to establish function of criticality. Hence, the Examiner states that it would have been an obvious matter of design choice to a person of ordinary skill in the art to choose the CNT density to be 100 to 1,000,000 times a carbon nanotube density of the base layer because Applicant has not disclosed a function of criticality.

First of all, as shown below, critically does not have to be shown as it is the burden of the Examiner to provide a reason for rejection. It is settled patent law that the Examiner's statement that a modification of a reference under 35 U.S.C. §103 would be a "design choice" or in this case a "design option" is a conclusion rather than a reason for rejecting a claim under 35 U.S.C. §103.

Moreover, simply stating that a certain item is a design choice used by the Examiner was never intended to short-circuit the clear wording of 35 U.S.C. §103. Such a *per se* rule is improperly used. A finding of obviousness must be based upon a determination of obviousness under section 103 and not upon a mechanical rule extracted from *In re Karlson*. See *In re Wright*, 343 F.2d 761, 769-770, 145 USPQ 182, 190 (CCPA 1965). It is improper to use *per se* rules to sidestep the fact-intensive inquiry mandated by section 103. See *In re Ochiai*, 71 F.3d 1565, 1570, 37 USPQ2d 1127, 1132 (Fed. Cir. 1995), See also, *Ex parte Edwin G. Sawdon and Brian D. Petit*, decision of the Board of Patent Appeals and Interferences, Patent No. 6,722,842 (Appeal No. 2003-0693, application no. 09/006,248), paper No. 34, page 7. Therefore, design choice is an improper reason for rejection.

In view of the foregoing amendments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. If there are any questions, the examiner is asked to contact the applicant's attorney.

No fee is incurred by this Amendment. Should there be a deficiency in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,



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